EARTHWORK COMPUTATIONS & SHRINKAGE

North Dakota Department of Transportation, Construction
SFN 16082 (Rev. 03-2000)

Project Number

() DENOTES COLUMN NO. (See reverse side.)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	E (9) TS	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
MILE NO.	**PLAN EXC.**	**ACTUAL EXC.**	**PLAN EXC. T.S.**	**ACTUAL EXC. T.S.**	**PLAN S.C.**	**ACTUAL S.C.**	**TOTAL EXC.**	**PLAN BORR.**	**ACTUAL BORR.**	**PLAN MUCK.**	**ACTUAL MUCK.**	**PLAN EMS.**	**ACTUAL EMB.**	**PLAN EMB. T.S.**	**ACTUAL EMB. T.S.**	**TOTAL EMB.**	**TOTAL EXC. FOR EMB.**	**SHRK %**
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INSTRUCTIONS

(1) Quantity derived from Common Excavation column on Summary of Quantities sheets of plans.

(2) Actual Roadway Excavation does **not** include S.C., Borrow or Muck Excavation. (includes topsoil.)

(3) Topsoil from Summary of Quantities sheets minus backfill from unadjusted columns of the dirt quantity sheets in the plans.

(4) Quantity of topsoil as per final computations.

(5) Quantity obtained from Plan Sheets.

(6) Quantity of sub-cut as per final field measurements.

(7) Total Excavation Quantity includes the sum of columns (2) and (6) - Topsoil (4).

(8) Quantity obtained from Summary of Quantities sheets of the plans.

(9) Actual Borrow as computed from final field measurements. E = Excavation used for roadway embankment. TS = Topsoil removed and replaced - paid for as borrow. (See Plan Note.)

(10) Plan Muck Excavation quantity obtained from No. 2 sheet of the plans.

(11) Actual Muck Excavation. U = Material used in the embankment. W = Material that was used for waste outside the construction limits. Both U and W to be paid for at the unit price for this item.

(12) Plan Embankment = $\frac{\text{Plan Exc. + Plan Borrow - Plan Topsoil 1+8+3)}}{\text{100 + Plan Shrinkage}}$

(13) Actual Embankment includes that quantity from the original ground to the finished grade line of the embankment. Does **not** include actual S.C., C & G, or Muck Excavation quantities.

(14) Plan embankment quantity obtained from Plan Sheets. (Backfill)

(15) Actual embankment quantity derived from final computations.

(16) Total Embankment quantity includes the sum of the quantities from columns (6), (11), (13), and 15).
Note: Material used for waste column (11) may not show up on the final X-Sec's. This quantity should be included in this column total.

(17) Total Excavation for Embankment. This quantity is the sum of columns (7), (9)E, and (11)U.

(18) Shrinkage $= \frac{\text{Total Exc. for Emb. (17)}}{\text{Total Emb. (16)}} - 100 = \%$

Wasted rock excavation and coal subcut for shrinkage purposes would be handled in the same manner as muck excavation shown under item (11).

The instructions and illustrations on the recapitulations sheet are the suggested method of presentation under normal circumstances. Adjustments may have to be made for individual conditions on certain projects.